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L7: Entry 1 of 8

File: DWPI

Feb 18, 2003

DERWENT-ACC-NO: 2003-261563

DERWENT-WEEK: 200326

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TITLE: Antiskid control apparatus for motor vehicle, judges time duration from start of hydraulic pressure reduction process until vehicle speed reaches pseudo speed degree to detect skidding condition of vehicle

PATENT-ASSIGNEE: UNISIA JECS CORP (NIEJ)

PRIORITY-DATA: 2001JP-0235401 (August 2, 2001)

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/> <u>JP 2003048529 A</u>	February 18, 2003		013	B60T008/96

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP2003048529A	August 2, 2001	2001JP-0235401	

INT-CL (IPC): B60 T 8/58; B60 T 8/96

ABSTRACTED-PUB-NO: JP2003048529A

BASIC-ABSTRACT:

NOVELTY - The hydraulic pressure of braking cylinder is reduced, when calculated acceleration of each wheel reaches the control target speed. A timer judges the time duration from the start of hydraulic pressure reduction process until the vehicle speed reaches a pseudo speed degree. The skidding of vehicle is judged, when the timer value exceeds threshold limit and when the friction of road surface is detected to be low.

USE - For motor vehicle.

ADVANTAGE - The antiskid of the vehicle is detected accurately, thereby the driving of the vehicle is performed safely.

DESCRIPTION OF DRAWING(S) - The figure shows the graph representing the operating state of the antiskid control apparatus. (Drawing includes non-English language text).

ABSTRACTED-PUB-NO: JP2003048529A

EQUIVALENT-ABSTRACTS:

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L7: Entry 2 of 8

File: DWPI

Apr 4, 2000

DERWENT-ACC-NO: 2000-312560

DERWENT-WEEK: 200027

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TITLE: Antiskid control apparatus for vehicles, performs antiskid control when removed decelerating component of low frequency region exceeds predetermined threshold value

PATENT-ASSIGNEE: NIPPONDENSO CO LTD (NPDE)

PRIORITY-DATA: 1998JP-0269962 (September 24, 1998)

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/> <u>JP 2000095079 A</u>	April 4, 2000		007	B60T008/00

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP2000095079A	September 24, 1998	1998JP-0269962	

INT-CL (IPC): B60 T 8/00; B60 T 8/58

ABSTRACTED-PUB-NO: JP2000095079A

BASIC-ABSTRACT:

NOVELTY - A wheel decelerating component of low frequency region is removed from the detected wheel acceleration based on the wheel speed. If the removed decelerating component exceeds a predetermined threshold value antiskid control is performed. A band pass filter removes the decelerating component.

USE - For vehicles.

ADVANTAGE - Since it is not concerned with the road surface friction coefficient antiskid control is judged correctly.

DESCRIPTION OF DRAWING(S) - The figure shows schematic diagram showing components of antiskid control apparatus.

ABSTRACTED-PUB-NO: JP2000095079A

EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/5

DERWENT-CLASS: Q18

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L7: Entry 3 of 8

File: DWPI

Mar 12, 1996

DERWENT-ACC-NO: 1996-159498

DERWENT-WEEK: 199616

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TITLE: Motor vehicle split anti-skid braking control appts - includes controller for assessing with reference to threshold values whether or not a vehicle wheel is about to lock based on wheel speeds.

INVENTOR: OIKAWA, H; TAKAYAMA, T.

PATENT-ASSIGNEE: TOKICO LTD (TOJC)

PRIORITY-DATA: 1990JP-0304928 (November 9, 1990)

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/> <u>US 5498071 A</u>	March 12, 1996		017	B60T008/32

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 5498071A	November 7, 1991	1991US-0789254	Cont of
US 5498071A	April 28, 1994	1994US-0234639	

INT-CL (IPC): B60 T 8/32

ABSTRACTED-PUB-NO: US 5498071A

BASIC-ABSTRACT:

An anti-skid control appts. comprising wheel speed sensors for measuring speed of the wheels respectively; a modulator for selecting a mode for each of the wheels, the mode being selected out of an increase pressure mode, and at least one of a decrease pressure mode and a hold mode; the increase pressure mode is for increasing brake fluid pressure, the decrease pressure mode is for decreasing the brake fluid pressure, and the hold mode is for maintaining the pressure; a controller for judging, with reference to threshold values, whether or not a wheel is about to lock based on wheel speeds; and when a wheel is about to lock, activating antiskid control for the wheel which is about to lock by controlling the selection of modes at the modulator so that one of the hold mode and the pressure decrease mode is selected for the wheel which is about to lock.

The controller has a pressure suppression device for stepwisely increasing in pressure increments the brake fluid pressure of a first front wheel which is not under the antiskid control in condition that a second front wheel is under antiskid control.

a split mu detection device for counting the number of the pressure increments, and judging that split mu state occurs when the number of increments exceeds a prescribed value, the split mu state being defined as a condition when the difference between the friction coefficients of the surface beneath the right and left wheels exceeds a predetermined value, and a threshold value changing device for decreasing a threshold value corresponding to the first front wheel, during the antiskid control of the second front wheel and in the split mu state, so as to facilitate an activation of either one of the pressure decrease mode and the hold mode for the first front wheel.

USE/ADVANTAGE - For a vehicle braking system involving front wheels, rear wheels, and a brake system for optionally exerting braking force on the wheels where brake fluid is employed to transmit the braking force. Capable of providing reliable anti-skid control ensuring driving stability under split mu road surface conditions regardless of type or size of vehicle involved.

ABSTRACTED-PUB-NO: US 5498071A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/9

DERWENT-CLASS: Q18 X22
EPI-CODES: X22-C01B;

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File: DWPI

Jul 6, 1993

DERWENT-ACC-NO: 1993-226354

DERWENT-WEEK: 199328

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TITLE: Anti-skid control appts. for vehicle braking system - detects whether road surface has split mu condition, and lowers braking power for rear wheels stepwise to suppress spinning and secure large side force

INVENTOR: OIKAWA, H; TAKAYAMA, T

PATENT-ASSIGNEE: TOKICO LTD (TOJC)

PRIORITY-DATA: 1990JP-0304930 (November 9, 1990), 1990JP-0304929 (November 9, 1990)

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/> US 5224766 A	July 6, 1993		023	B60T008/34

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 5224766A	November 7, 1991	1991US-0789049	

INT-CL (IPC): B60T 8/34

ABSTRACTED-PUB-NO: US 5224766A

BASIC-ABSTRACT:

The appts. comprises wheel speed sensors for measuring speed of the wheels respectively. A modulator selects a mode for each of the wheels, out of an increase pressure mode, and at least one of a decrease pressure mode and a hold mode. The increase pressure mode is for increasing brake fluid pressure, the decrease pressure mode is for decreasing the brake fluid pressure, and the hold mode is for maintaining the pressure. A controller judges, w.r.t. threshold values, whether a wheel is about to lock based on wheel speeds, and when a wheel is about to lock, activates anti-skid control for the wheel which is about to lock, by controlling the selection of modes at the modulator so that one of the hold mode and the pressure decrease mode is selected for the wheel which is about to lock.

The controller has a pressure suppression device for stepwisely increasing in pressure increments the brake fluid pressure of a front wheel which is not under the anti-skid control in the condition when the other front wheel is under anti-skid control. A split mu detection device counts the number of the pressure increments, and determines that a split mu state exists when the number of increments exceeds a prescribed value. The split mu state is defined as a condition when the difference between the friction coeffts. of the surface beneath the right

and left wheels exceeds a predetermined value. A braking force decreasing device decreases the braking force on the rear wheels, during the anti-skid control of the other front wheel and in the split mu state.

ADVANTAGE - Provides reliable antiskid control which ensures driving stability under split mu road surface conditions regardless of the type or size of vehicle to which it is applied.

ABSTRACTED-PUB-NO: US 5224766A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.7/13

DERWENT-CLASS: Q18 X22
EPI-CODES: X22-C01A;

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L7: Entry 5 of 8

File: DWPI

Jun 25, 1987

DERWENT-ACC-NO: 1987-179114

DERWENT-WEEK: 198726

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TITLE: Antiskid brake control for motor vehicle - has retardation monitors on at least two wheels with processor to compute actual road speed

INVENTOR: MATSUDA, T

PATENT-ASSIGNEE: NISSAN MOTOR CO LTD (NSMO)

PRIORITY-DATA: 1985JP-0287675 (December 23, 1985), 1986US-0945715 (December 23, 1986)

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PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/>	<u>DE 3644221 A</u>	June 25, 1987		028	
<input type="checkbox"/>	<u>DE 3644221 C</u>	February 27, 1992		000	
<input type="checkbox"/>	<u>US 4805103 A</u>	February 14, 1989		027	

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
DE 3644221A	December 23, 1986	1986DE-3644221	
US 4805103A	December 23, 1986	1986US-0945715	

INT-CL (IPC): B60T 8/32

ABSTRACTED-PUB-NO: DE 3644221A

BASIC-ABSTRACT:

The hydraulic brake system has brake cylinders on each wheel and with anti-skid brake control valves applied to pairs of wheels and linked to a processor control. The wheel-skid control operates with threshold values. The wheels are braked with a separate control and the processor computes a signal related to the actual road speed.

The system can be applied to all wheel drive systems in which the wheel retardation characteristic is different to undriven wheels. It allows max. brake control on poor grip roads, with brake modulation on all the wheels.

ADVANTAGE - Improved brake control, max. brake effect.

ABSTRACTED-PUB-NO: DE 3644221C

EQUIVALENT-ABSTRACTS:

The vehicle hydraulic braking system, e.g. for a 4-wheel drive vehicle has a wheel braking cylinder (1a, 4a) and an inlet and outlet valve (19a, 19b; 20a, 20b) for each vehicle wheel (1, 2). The rotation of each wheel (1, 2) is detected via a sensor (26a, 26b) providing a wheel velocity signal fed to a braking regulation circuit.

Each of the front wheels (1, 2) is subjected to individual anti-locking braking regulation, the braking regulation for the rear wheels using the lowest of the supplied wheel velocity signals, with individual control of the inlet valves and combined control of the outlet valves.

ADVANTAGE - Optimal braking at each vehicle velocity. (27pp)

US 4805103A

The automotive anti-skid brake system allows control for braking pressure at each wheel independently of other wheels. The anti-skid brake control is initiated in response to a drop of wheel acceleration across a predetermined wheel deceleration threshold. In the anti-skid brake control operation, braking pressure for at least two wheels are released in synchronism with each other.

Increasing rate of the braking pressure at the synchronously released wheels is varied so that when one of the wheels causes wheel-locking, the other wheel is held in a non-locking condition. This assures that the derivation of the vehicle speed representing value will be based on the wheel speed of the other wheel which is not locking and assures prevention of locking at any wheels.

ADVANTAGE - Prevents locking of wheels even at low friction of road surface condition. (27pp)a

CHOSEN-DRAWING: Dwg.0/14

DERWENT-CLASS: Q18 X22

EPI-CODES: X22-C01;

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File: DWPI

Aug 8, 1985

DERWENT-ACC-NO: 1985-197579

DERWENT-WEEK: 198533

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TITLE: Antiskid brakes with wheel spin control - has selective braking to balance wheel spin without stopping drive

PATENT-ASSIGNEE: BOSCH GMBH ROBERT (BOSC)

PRIORITY-DATA: 1984DE-3404018 (February 6, 1984)

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/> DE 3404018 A	August 8, 1985		014	
<input type="checkbox"/> DE 3404018 C	December 3, 1992		007	B60T008/34
<input type="checkbox"/> GB 2154293 A	September 4, 1985		000	
<input type="checkbox"/> GB 2154293 B	October 14, 1987		000	
<input type="checkbox"/> SE 461387 B	February 12, 1990		000	
<input type="checkbox"/> SE 8500523 A	August 7, 1985		000	
<input type="checkbox"/> US 4643485 A	February 17, 1987		000	

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
DE 3404018A	February 6, 1984	1984DE-3404018	
DE 3404018C	February 6, 1984	1984DE-3404018	
GB 2154293A	February 5, 1985	1985GB-0002895	
US 4643485A	November 21, 1984	1984US-0673830	

INT-CL (IPC): B60K 28/16; B60T 8/34; B60T 8/50

ABSTRACTED-PUB-NO: DE 3404018A

BASIC-ABSTRACT:

The vehicle (3) is driven via a differential and has a wheel speed sensors on each wheel. During drive the relative wheel speeds of the drive and undriven wheels is monitored to detect wheelspin. The respective wheel is braked in a controlled manner to remove the wheelspin torque without losing the basic torque.

The wheel speed sensors are linked to a one channel differentiating circuit, after exceeding a preset spin level. The brake control incorporates a time delay and the brake pressure is increased in preset steps.

ADVANTAGE - Control of wheelspin without stalling vehicle.

ABSTRACTED-PUB-NO: DE 3404018C

EQUIVALENT-ABSTRACTS:

The braking-system is fitted to a vehicle whose drive torque is transmitted to the driven wheels via a differential. Electrically operated valves control the rise and fall of the brake-pipe pressures from a reservoir.

Angular position sensors on the wheels feed signals to an electronic control unit so that if the difference in angular velocity (W) between the driven and undriven wheels exceeds a threshold value, brake pressure (P) to the driven wheel is increased. On reaching a max. velocity difference (W) the pressure (P) is kept constant.

USE/ADVANTAGE - Anti-slip braking-system for motor-vehicle. Control system not defeated by rapidly changing surface-frictions.

GB 2154293B

A vehicle brake system intended for a vehicle having a drive engine, at least one differential gear and wheels driven by way of the latter, said brake system comprising wheel brakes associated with at least the driven wheels, brake-pressure control valves individually associated with the wheel brakes for the purpose of building up brake pressure, holding brake pressure and reducing brake pressure, a unit for ascertaining angular velocities of the wheels and drive slip and, when drive slip occurs for actuating the brake-pressure control valves when a preselected switching threshold is exceeded for the purpose of building-up and temporarily holding and finally reducing the brake pressure in order to reduce drive slip, and including a device which, after said switching threshold has been exceeded and after a rise in brake pressure initiated thereby, controls the brake-pressure control valve or valves such that the valve or valves moves or move into its or their brake pressure holding position or positions as soon as the brake or brakes controlled by the valve or valves is or are exerting a braking torque or torques which substantially absorbs or absorb the excess wheel slip producing torque of the drive or drives.i

US 4643485A

The vehicle has wheels driven via a differential transmission, non-driven wheels and wheel brakes individually associated with the wheels. A control circuit is connected to angular velocity wheel sensors for rotational wheel angle associated with the wheels and has at least one differentiating device, which emits control signals whenever drive slip exceeds a preselected switching threshold.

By using the control circuit brake pressure control valves of the slipping wheels are controlled such that brake pressure in their wheel brakes builds up. The pressure build up is terminated as soon as the differentiating device ascertains that a drop of the angular wheel accelerations have dropped below a maximum value. Subsequently the brake pressure initially remains substantially constant.

ADVANTAGE - This has the advantage of avoiding the danger of abruptly choking off an internal combustion engine in the vehicle when the vehicle is being started up on a road surface having greatly varying traction. (6pp)o

CHOSEN-DRAWING: Dwg.1/3 Dwg.3/3

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File: DWPI

Mar 6, 1985

DERWENT-ACC-NO: 1985-057347

DERWENT-WEEK: 198510

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TITLE: Anti-skid vehicle braking control system - determines coefficient of friction of road surface and modifies brake fluid pressure

INVENTOR: ASAMI, K; MASAKI, S ; NAKASHIMA, N ; SAKAI, K ; TAMURA, K ; WAKAO, T

PATENT-ASSIGNEE: NIPPONDENSO CO LTD (NPDE), TOYOTA JIDOSHA KK (TOYT)

PRIORITY-DATA: 1983JP-0145257 (August 9, 1983)

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PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/>	<u>EP 133812 A</u>	March 6, 1985	E	039	
<input type="checkbox"/>	<u>DE 3475506 G</u>	January 12, 1989		000	
<input type="checkbox"/>	<u>EP 133812 B</u>	December 7, 1988	E	000	
<input type="checkbox"/>	<u>US 4666218 A</u>	May 19, 1987		000	

DESIGNATED-STATES: DE FR GB DE FR GB

CITED-DOCUMENTS: No-SR.Pub; 1.Jnl.Ref ; EP 50280 ; US 3674320 ; US 3861756 ; US 4395761

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 133812A	August 7, 1984	1984EP-0305374	
EP 133812B	August 1, 1984	1984EP-0305374	
US 4666218A	August 8, 1984	1984US-0638717	

INT-CL (IPC): B60T 8/32

ABSTRACTED-PUB-NO: EP 133812A

BASIC-ABSTRACT:

A wheel speed detector (b) receives pulse train signals from generators (a) each associated with a vehicle wheel. The resulting speed signal is applied to a wheel acceleration detector (c), to a friction detector (d) and to mode detectors (e,f). A signal representing acceleration of a wheel is derived and applied to the mode detectors and to the friction detector. The latter determines, from the wheel speed and acceleration, whether the road surface friction is high or low.

If a high value is determined, a gradual reduction of braking fluid pressure is determined by a solenoid (g). A rapid reduction of pressure is determined by actuating a further solenoid (h), in response to the first mode detector (e). In response to a low friction signal, the second mode detector operates the rapidly-reducing pressure control solenoid (h).

ABSTRACTED-PUB-NO: EP 133812B
EQUIVALENT-ABSTRACTS:

An antiskid control system for regulating the braking pressure in a brake of a wheeled vehicle, the system being responsive to the speed of a wheel and to the acceleration of said wheel to selectively effect a rapid or slow reduction in braking pressure characterised in that, in dependence on said wheel speed and wheel acceleration the road surface is classified as having a high or a low friction value, and in that whilst a high friction value is detected, an overall slow reduction in brake pressure is effected provided that said speed and acceleration satisfy the following speed and acceleration condition for pressure reduction: the wheel speed (V_w) is greater than a first speed threshold (V_{sh}), and the acceleration (A_w) is smaller than a first acceleration threshold (G_1), and whilst a low friction value is detected and overall rapid reduction in brake pressure is effected provided that said speed and acceleration satisfy said condition. (21pp)

US 4666218A

In an antiskid control system for the hydraulic braking system of a wheeled vehicle, the rotational speed of a vehicle wheel and the acceleration of the wheel are detected. Levels of road surface friction are determined on the basis of the wheel speed and acceleration to give an indication that the road has a high value of friction or a second indication that the road has a low value of friction.

The wheel speed and acceleration are analysed to detect a down-pressure mode to decrease the fluid pressure of the braking system and an up-pressure mode to increase the pressure. In response to the presence of the first indication, the down-pressure mode is effected at a lower rate and then at a higher rate. In response to the occurrence of the second indication, the down-pressure mode is effected at the higher rate. (19pp)d

CHOSEN-DRAWING: Dwg.1/14

DERWENT-CLASS: Q18 X22
EPI-CODES: X22-C01;

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L7: Entry 8 of 8

File: DWPI

Feb 27, 1985

DERWENT-ACC-NO: 1985-051503

DERWENT-WEEK: 198509

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TITLE: Antiskid braking control system with surface friction compensation - reduces brake pressure to prevent premature wheel locking but eliminates excessive reduction

INVENTOR: ASAMI, K; MASAKI, S ; NAKASHIMA, N ; SAKAI, K ; TAMURA, K ; WAKAO, T

PATENT-ASSIGNEE: NIPPONDENSO CO LTD (NPDE), TOYOTA JIDOSHA KK (TOYT)

PRIORITY-DATA: 1983JP-0145259 (August 9, 1983)

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PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/>	<u>EP 133598 A</u>	February 27, 1985	E	042	
<input type="checkbox"/>	<u>DE 3475505 G</u>	January 12, 1989		000	
<input type="checkbox"/>	<u>EP 133598 B</u>	December 7, 1988	E	000	
<input type="checkbox"/>	<u>US 4665490 A</u>	May 12, 1987		000	

DESIGNATED-STATES: DE FR GB DE FR GB

CITED-DOCUMENTS:A3...198634; EP 50280 ; FR 2462314 ; FR 2476008 ; GB 2002473 ; GB 2004011 ; GB 2119882 ; No-SR.Pub ; US 3804469 ; US 4140353 ; US 4395761

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 133598A	August 7, 1984	1984EP-0305376	
US 4665490A	August 8, 1984	1984US-0638722	

INT-CL (IPC): B60T 8/32

ABSTRACTED-PUB-NO: EP 133598A

BASIC-ABSTRACT:

A speed detector (A) is mounted on each wheel of the vehicle with at least one wheel acceleration detector (B) deriving a wheel acceleration value from the detected speed value. A vehicle speed detector (C) estimates the vehicle speed based on the maximum value of the wheel speeds (A). The vehicle speed (C) is applied to a variable threshold generator (D) which generates at least one speed

threshold for determination of down-pressure timing and at least one acceleration threshold for determination of the down-pressure timing.

The threshold values are fed to comparators (E1 and E2), for comparison with wheel speed and wheel acceleration values from detectors (A and B). The comparator outputs are applied to a road surface friction estimation logic (F) and to pressure mode selection logic (G) which reacts through the solenoid operated device (H) to adjust brake pressure accordingly to prevent skidding.

USE/ADVANTAGE - Limits applied brake pressure to value just below that which will cause skidding thereby achieving maximum level of deceleration.

ABSTRACTED-PUB-NO: EP 133598B

EQUIVALENT-ABSTRACTS:

A speed detector (A) is mounted on each wheel of the vehicle with at least one wheel acceleration detector (B) deriving a wheel acceleration value from the detected speed value. A vehicle speed detector (C) estimates the vehicle speed based on the maximum value of the wheel speeds (A). The vehicle speed (C) is applied to a variable threshold generator (D) which generates at least one speed threshold for determination of down-pressure timing and at least one acceleration threshold for determination of the down-pressure timing.

The threshold values are fed to comparators (E1 and E2), for comparison with wheel speed and wheel acceleration values from detectors (A and B). The comparator outputs are applied to a road surface friction estimation logic (F) and to pressure mode selection logic (G) which reacts through the solenoid operated device (H) to adjust brake pressure accordingly to prevent skidding.

USE/ADVANTAGE - Limits applied brake pressure to value just below that which will cause skidding thereby achieving maximum level of deceleration.

US 4665490A

The control system senses the speed and acceleration of at least one vehicle wheel, and from the detected wheel speed, the speed of the vehicle is estimated. Two variable threshold values are derived from the vehicle speed. The wheel speed and acceleration are compared with the thresholds, respectively, to estimate the level of road surface friction and to operate a solnoid-operated hydraulic brake pressure decreasing mechanism.

The operating period of the pressure decreasing mechanism means is controlled in accordance with the estimated road surface friction to prevent excessive reduction of the brake pressure and premature locking of the wheels. (20pp)

CHOSEN-DRAWING: Dwg.1/17 Dwg.1/17

DERWENT-CLASS: Q18 X22

EPI-CODES: X22-C01;

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L19: Entry 4 of 18

File: USPT

Feb 15, 2000

US-PAT-NO: 6026343

DOCUMENT-IDENTIFIER: US 6026343 A

TITLE: Anti-skid control system for automotive vehicles

DATE-ISSUED: February 15, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ogino, Kenji	Ishibashi			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Nissan Motor Co., Ltd.	Yokohama			JP	03

APPL-NO: 08/ 790740 [PALM]

DATE FILED: January 27, 1997

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	8-014631	January 30, 1996

INT-CL: [07] B60 T 8/58, B60 T 8/62

US-CL-ISSUED: 701/72; 701/70, 701/71, 701/73, 701/78, 701/75, 701/81, 303/146

US-CL-CURRENT: 701/72; 303/146, 701/70, 701/71, 701/73, 701/75, 701/78, 701/81

FIELD-OF-SEARCH: 701/72, 701/78, 701/75, 701/81, 701/70, 701/71, 701/73, 303/146

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

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	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>5140524</u>	August 1992	Matsuda	364/426.01
<input type="checkbox"/>	<u>5488557</u>	January 1996	Matsuda	364/426.02
<input type="checkbox"/>	<u>5752752</u>	May 1998	Tozu et al.	701/72
<input type="checkbox"/>	<u>5799261</u>	August 1998	Ozaki et al.	701/72

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
61-285163	December 1986	JP	
4-339065	November 1992	JP	
8-188138	July 1996	JP	

ART-UNIT: 361

PRIMARY-EXAMINER: Cuchlinski, Jr.; William A.

ASSISTANT-EXAMINER: Hernandez; Olga

ATTY-AGENT-FIRM: Foley & Lardner

ABSTRACT:

An anti-skid control system for an automotive vehicle, comprises a plurality of actuators each associated with one of front-left, front-right, rear-left and rear-right road wheels, for adjusting braking forces applied to the road wheels, sensors for detecting wheel speeds of the road wheels to generate wheel-speed indicative signals, and a controller for controlling the actuators in response to the wheel-speed indicative signals. The controller controls a hydraulic actuator associated with a controlled outer rear road wheel through a so-called select-LOW process between a wheel-speed indicative signal value of the controlled rear outer road wheel and a wheel-speed indicative signal value of a diagonal front wheel located on the vehicle diagonally to the controlled outer rear wheel only when the controller determines that the vehicle is in a cornering state with a high lateral acceleration during a braking-force control for the controlled outer rear wheel.

5 Claims, 7 Drawing figures

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L21: Entry 1 of 1

File: USPT

Jul 6, 1999

US-PAT-NO: 5918953

DOCUMENT-IDENTIFIER: US 5918953 A

TITLE: Antilock brake system control apparatus

DATE-ISSUED: July 6, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nihei; Toshihisa	Mishima			JP
Matsubayashi; Hiroyuki	Susono			JP
Kondoh; Koichi	Kasugai			JP
Nagai; Hiroyuki	Nagoya			JP
Sakata; Yasunori	Toyota			JP
Itabashi; Satoshi	Phoenix	AZ		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Toyota Jidosha Kabushiki Kaisha	Toyota			JP	03
Aishin Seiki Kabushiki Kaisha	Kariya			JP	03

APPL-NO: 08/ 749644 [PALM]

DATE FILED: November 15, 1996

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	7-301167	November 20, 1995

INT-CL: [06] B60 T 8/58

US-CL-ISSUED: 303/190; 303/192

US-CL-CURRENT: 303/190; 303/192

FIELD-OF-SEARCH: 303/9.67, 303/9.68, 303/190, 303/192, 303/165, 701/81

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

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US-CL

<input type="checkbox"/>	<u>3606491</u>	September 1971	Walsh	303/192 X
<input type="checkbox"/>	<u>4850656</u>	July 1989	Ise et al.	303/192
<input type="checkbox"/>	<u>5423601</u>	June 1995	Sigl et al.	303/192 X

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
A-6-503525	April 1994	JP	

ART-UNIT: 363

PRIMARY-EXAMINER: Young; Lee W.

ATTY-AGENT-FIRM: Oliff & Berridge, PLC

ABSTRACT:

An antilock brake system (ABS) control apparatus for a four-wheel drive vehicle, having a slope identifier for determining the drive status of the vehicle along a slope before an ABS control is started, and a controller that changes the usual ABS control to a control in which the ABS control is restricted on condition that the state of the drive along the slope has been decided, whereby the braking distance of the vehicle during the drive along the slope can be shortened.

1 Claims, 14 Drawing figures

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Nagai; Hiroyuki	Nagoya			JP
Sakata; Yasunori	Toyota			JP
Itabashi; Satoshi	Phoenix	AZ		

US-CL-CURRENT: 303/190; 303/192

CLAIMS:

What is claimed is:

1. An antilock brake system control apparatus wherein a braking hydraulic pressure is controlled to an appropriate value in accordance with the detection of a wheel slip of a four-wheel drive vehicle, comprising:

slope decision means for determining a drive state of the vehicle on a slope before start of braking; and

control changeover means for changing an antilock brake system control to a brake control in which the engagement of the antilock brake system control is restricted, on a basis of the drive state of the vehicle on the slope determined by said slope decision means, wherein said slope decision means determines the drive state of the vehicle on the slope on the basis of a turn-ON signal indicating a vehicle drive status in which both low side gear train and four-wheel drive are selected.

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